INVESTIGATING THE BENEFITS OF MASTERY LEARNING
IN THE HIGH SCHOOL PHYSICS CLASSROOM
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Introduction
Students in general education physics classes often struggle with the material presented. Not all students can be successful in the time frame provided by the curriculum calendar. Last year, we had many students struggling to succeed on the unit tests; we had about a 10% failure rate of students taking physics. The best way was to allow students to move through the curriculum at their own pace and to require mastery of topics within each unit of the curriculum. We decided to utilize the mastery learning approach.

Research Questions
- How implementing mastery framework affected student performance in on-level physics classes
- How mastery would impact student performance on common formative assessments
- How it impacts student perceptions of physics
- How mastery encourages student motivation
- How implementing mastery impacts me, as an educator

Methodology
Mastery learning was implemented in my classroom through a series of checklists (see Figure 1). When a student started a new unit, they were handed a packet with note guides, labs, worksheets, activities, simulations, etc. Quizzes were administered over the current topic. Students had to earn at least an 80% before they could move on to the next topic.

- If a student experienced three failed attempts they sat down with a teacher and did a “reteach” session in a small group setting.
- Upon completion of the tutoring, we tried the mastered check once last time.

- Students who failed the mastery check, went back to complete additional activities until they could prove mastery.

Student Quotes
- Students said they participated more due to the “lack of pressure” they felt
- Many students indicated they “like being self-paced”
- “The teacher doesn’t put pressure on anybody unless they are falling behind.”
- Not having a “guide line or schedule to follow made it very hard to know what [they] should work on each day”
- “It would be helpful to keep more to a strict schedule so you finish everything and get it done”
- Mastery “stressed them out” because they didn’t always know how much work they should have done
- They were “procrastinating a lot” because of the self-paced mastery

Data did not find a positive correlation for student motivation and confidence. Overall, the students who required more mastery checks on average, tended to perform worse on the test. Data did not find many positive correlations between mastery and improving student motivation, confidence and achievement.